

## Description of Plants Associated with Buddha's Life

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### Abstract

Buddhism is a world faith that has changed the lives of millions of people of India and many other countries like China, Sri Lanka, Thailand, Bhutan, Myanmar, Mongolia, Japan, Cambodia etc. Lord Buddha told people how to achieve fulfillment by meditation, wisdom and correct behaviour in all aspects of life. Four plants Sal (*Shorea robusta*), Banyan (*Ficus bengalensis*), Peepal (*Ficus religiosa*) and Lotus (*Nelumbo nucifera*) played a significant role in the life of Lord Buddha. All of these plants have specific properties and importance. They are the native plant of India and have long association with our culture. They have medicinal properties, helps in curing many diseases and health complications.

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### I. Introduction

Trees have a minor but noticeable role in the Buddha's biography. According to available literature and evidences four plants - Sal tree (*Shorea robusta*), Banyan tree (*Ficus bengalensis*), Peepal or Bodhi tree (*Ficus religiosa*) and Lotus (*Nelumbo nucifera*) are related to Buddha's life. He was born under a Sal tree (*Shorea robusta*) in 563B.C. at Lumbini (now in Nepal), his father's name was King Suddhodana and mother was Mahamaya, unfortunately she died just seven days after his birth. He was raised by his mother's younger sister Mahapajapati Gotami. He left home at the age of twenty-nine and was enlightened under a Bodhi tree (*Ficus religiosa*) when he was thirty-five years old (Varma,2011). When his father King Suddhodana heard the news of attaining Enlightenment by his son and also came to know that he is preaching at the Veluwnarama, Rajagahanuwara (ancient capital of Magadha Kingdom), invited him to his palace but he refused many times. Finally King sent Kaludai (childhood friend of Prince Siddhartha) and managed to persuade him to visit his father and relatives in the Sakya Desaya at Kimbulwathpura. After the journey of 900 miles accompanied with his 20,000 disciples, he came to meet his family after about six years. His relatives came to meet him in the shade of Banyan tree on full moon day. He passed into final Nirvana at Kushinagar in Uttar Pradesh under the spreading branches of two Sal trees. The Lotus Sutra are the teachings of Lord Buddha delivered by him towards end of his life. Mahayana states that the sutra was written down at the time of Buddha and stored for five hundred years in a realm of Nagas (Khetri 2011). In Buddhist symbolism the lotus is symbolic of purity of body, speech and mind as lotus remains rooted in the mud yet, it's flowers blossom above the muddy water on the long stalks. The muddy water represent attachment to worldly things and desire for them. Lotus is a symbol of detachment also as water droplets easily slide of its petals. Lotus teaches us how we can remain above the muddy water of desire and attachment.

Gautam Buddha continued meditating and exerted himself to overcome the last traces of doubt, ignorance and desire, under the Bodhi tree. He enlightened at morning on full moon day. On the memorable forenoon, immediately preceding the morning of his Enlightenment, the ascetic Gautama was seated under the *Ajapāla* banyan tree, in close proximity to the Bodhi tree, a generous lady, the daughter of the village chief of Senani, *Sujāta*, expectedly offered the starved Gotama a bowl of *kheer* (sweet thickened milk with rice). Gautam Buddha attained nirvana also on the full moon day after teaching for forty-five years.

There are eight Great symbols of Buddhism(Varma,2011). **Lotus Flower – Padma**: Symbol of Purity, can be of any colour except blue. **Dharma chakra** – the wheel of the law. The eight spokes of wheel represent the eightfold path which should be followed to end the worldly suffering. It also helps in getting rid of from birth, death and rebirth cycle. By following this path one can get nirvana which is first described in Dhammacakkappavattana Sutra in Pali and Dharmacakrapravartana Sutra in Sanskrit and now available in many books. Buddha delivered this Sutra seven weeks after his enlightenment. **Stupa** – The Stupa is a symbolic grave monument where relics or the ashes of a holy monk are kept. It also symbolizes the universe. **Tiratana** – the three jewels (The Buddha, The Dharma and The Sangha). **Chattra** –A Parasol – protection against all evil. **Dhvaja** – Banner, the victory of the Buddha's teachings. **The Deer** - symbolizes the first sermon of the Buddha which was held in the Deer Park of Sarnath situated 10 kilometers north of Varanasi. **Naga** – The snake king, half human and half cobra which is vestige of pre-Buddhist fertility rituals and represents protector of the

Buddha and the Dharma. Buddha had revealed the famous Lotus Sutra at Griddhakuta mountain peak at Rajgir often called 'Vulture Peak' in Bihar.

## II. **BANYAN TREE (*Ficus bengalensis*) Family: Moraceae**

The Banyan tree is a native plant of India having a number of interesting details. At present the Banyan is about the commonest tree planted along many of the roads of India, near temples and shrines and on open grounds near villages. Its cool shade affords welcome relief from the burning Sun in the hotter parts of the country. It is an enormous tree having 70 to 100 ft. height. Roots originates from the branches of its trunk and spread in soil if allowed to touch the ground and form strong trunks. (Sir G. King in *Annals of the Royal Botanic Garden, Calcutta* 1: 18, 1887). These roots as shown in Fig.1, coming out of the branches are at first as slender as cotton threads, but gradually after they have become anchored in the ground, such threads grow into mighty pillars that support the weight of the heaviest branches (Santapau, 1902a). All parts of the plant remain full of a resinous milky juice.

### **2.1 Stem and Roots**

Banyan tree has very strange roots which are given off by the branches and hanging down in the air. The trunk of banyan tree sends down adventitious roots here and there which enter the ground as soon as they reach it and may become as large as and similar to the parent trunk, if get opportunity and open land area (Pfleiderer, 1988a). These roots support the huge canopy of this tree (Fig.1). Banyan tree strangles other plants to grow under and near it as it has broad, dense and huge canopy. In another way, birds may drop a seed of Banyan tree on another tree, where it begins to grow as epiphytic plant. It forms root after root. These roots descend from the stem of the tree to the ground, become stronger and stronger and finally hug it to death. Sometimes it grows in walls of old buildings and damages them as shown in Fig. 2.

### **2.2 Leaf**

Banyan tree has large, elliptic, dark green and shining above and downy beneath leaves which are covered with a very thick epidermis. The leaf-buds are protected under a sheathing cover formed by the stipules of the last leaf developed. When the leaves in the bud expand, the stipules drop to the ground and leave an annular scar on the branchlets. A remarkable red hue is found on the young leaves which indicates a very active process of breathing. When the leaves have done their work, they fall beneath the tree leaving leaf-scar at bare place of attachment.

### **2.3 Flower and Fruit**

The flowers remain concealed within a fleshy receptacle and they are called figs. They are placed in pairs at the base of the leaf-stalk. There are numerous minute flowers remain concealed within a fig. So, the round fig is composed of a receptacle and numerous flowers or fruits resting on it. The receptacle forms a hollow ball leaving a small opening at the top through which flowers are pollinated by insects. Within the fig the flowers are unisexual containing either one stamen (male reproductive organ) or one pistil (female reproductive organ) each and which is surrounded by a minute floral envelope called perianth (Pfleiderer, 1988a). Hence the plant is grouped under the monochlamydeous plants. The figs become brilliant red coloured and ripen in the cold weather. Pollination takes place through Fig wasps. Its fruit functions as the food for many birds, bats, Fig wasps and other animals which in turn disperse the seeds over wide area.



Fig. 1. Banyan tree in Gandhi Bagh, Meerut Cantt



Fig. 2: Banyan tree grown in wall of old building at Lal Kurti, Meerut

#### **1.4. Economic Importance**

##### **2.4.1 Medicinal Uses**

Each and every part of the tree holds useful properties that's why the Banyan tree is the National tree of India. Each and every part of this tree has its own unique medicinal uses. The bark and seeds can be used as a tonic to maintain body temperature and treat diabetes. The roots can be used to strengthen teeth and gums by brushing with them. Banyan root extract is useful in curing mental disorders also (Panday and Rauniar,2016).

The sap of Banyan plant treats external skin bruising and inflammation. Banyan tree is helpful in treating skin diseases. Even the leaves are useful in treating wounds and many other diseases.

The antidiabetic influence of the sap of banyan is associated with its anabolic and pancreatotropic effects (Dahanukar and Hazra ,1995).

##### **2.4.2 Other Uses**

Shellac (a resinous substance) has a large number of roles in making adhesive and surface finishes. Its bark is used for making ropes and paper. Aerial roots of Banyan tree are crushed to make a paste by the women of India as well as Nepal. They apply this paste to their hair to keep them healthy, strong and shiny. The wood is soft and often used as firewood.

### III. THE PEEPAL (*Ficus religiosa* Linn.) Family: Moraceae

The sacred "Bo tree" of Buddha was a Peepal. The Peepal is one of the best-known native trees of India. It is the state tree of the three Indian states named Odisha, Bihar and Haryana. It is planted in most villages of the country and is held in high esteem by Indian people. The tree attains a very great age and can survive thousands of years. There can hardly be a more peaceful scene than a peasant, at the end of toil in the fields, sitting under the village Peepal and being lulled to sleep by the rustling of its leaves. Hindus and Buddhists have a specific respect for this tree. This tree is often found near temples or shrines due to which its name has *religiosa*. The Peepal does not have the aerial roots so typical of the Banyan. The leaves and young branches are smooth and more or less shining (Fig.3). Later its stem became strong. Propagation of Peepal is very easy, it may be done by seeds or by cuttings.

#### 3.1 Leaves

Its leaf is green with reticulate venation, slightly leathery and widely oval in shape. The leaf base is rounded or heart shaped and leaves are drawn out in long narrow points forming a long tail at the apex. The leaves are hanging loosely like a pendulum (Pfleiderer,1988a). The petiole being very long, the leaves are shaken and trembled even by gentlest breeze like the leaves of the Aspen tree (*Populus tremuloides*) cause a rustling noise which has given rise to many superstitious beliefs. The stalk of the leaf called petiole is long about 6-7cm. The nerves of the leaves are very special. The midnerve is strong and thick and there are 5-9 lateral pairs which unite at their ends to form a wavy line near the margin of the leaf.

Figs or receptacles come out in pairs at the angle between the leaf and the branch. At first the figs are green and smooth finally they turn purple when ripe and are about 12 mm across.

#### 3.2 Flower and Fruits

The Peepal has small flowers which develop on a fleshy part called Receptacles. These Receptacles come out in pairs at the angle between the leaf stalk and the branch. At first they are green and smooth, later they turn purple on ripening. Each receptacle or fig contains a few, at times very few, male flowers near the opening at the apex; each flower consists of a single stamen supported by three minute colorless petals. The female flower consists of five petals surrounding safely a pistil among them. As stated in regard to the Banyan, the real fruits in all fig trees are the tiny pips, which may be seen when the fig is split open; such pips have the unfortunate habit of getting lodged between the teeth, when figs are eaten (Santapau1902b). Birds are rather fond of the Peepal fruit; the seeds pass out undigested and are scattered all over the country. Under conditions of sufficient moisture, such seeds germinate in the most unlikely places, like in crevices of walls and floor of houses or buildings or sometimes on other trees as shown in Fig. 4. Peepal plant grown on Neem tree (*Azadirachta indica*) and on Cucumbertree (*Magnolia accuminata*) in Fig.5.

#### 3.3 Sacred Tree

Traditionally Peepal is considered as a sacred tree because under this Gautam Buddha set in meditation and was enlightened at Bodh-Gaya, (Bihar) unfortunately the original tree has disappeared as it was destroyed by Ashoka's queen Tissarakkha, in 254 BC because she didn't like that Ashoka became follower of Buddhism. The tree grew again from the original one, but it was again cut down by King Pushyamitra Shunga in the 2<sup>nd</sup> century BC and by King Shashanka in 600 AD. Again it was planted but destroyed by natural calamity. In 1878 British Archaeologist Alexander Cunningham planted a new Bodhi tree which is a successor of original one (Wikipedia). Hindus also consider it sacred tree and it is believed that any person who plants a Peepal tree will be blessed by generations to come, who will enjoy the shade of the hospitable branches in the heat of the day in summer.

#### 3.4 Damage Buildings

Sometimes Peepal grows on the other tree or may grow in cracks on walls, mostly of old buildings. This tree may cause damage to buildings or houses if germinate there, as the roots of the tree may pass under the walls and gradually push them up causing damage. Many vigorous seedlings can be seen on some of the older buildings in our city (Fig.6).

#### 3.5 Uses

Fresh branch of Peepal is used to brush the teeth from old time in villages. It cures the swelling of gums, controls the foul smell from mouth and strengthens the teeth (Tripathi and Kumar,2013). Powder of its ripe fruit with honey cures stammering and boiled water of its small branches cures Psychosis, a mental disorder. Its bark helps in curing cough, pimples and other skin disorders, asthma and dehydration. Its leaves help in curing abdominal pain, skin disorders, Jaundice etc. (Balkrishna 2008, Sandeep et al. 2018, Kapile et al. 2022, Gupta 2023).



Fig.3: Peepal tree at Meerut Cantt Railway Station

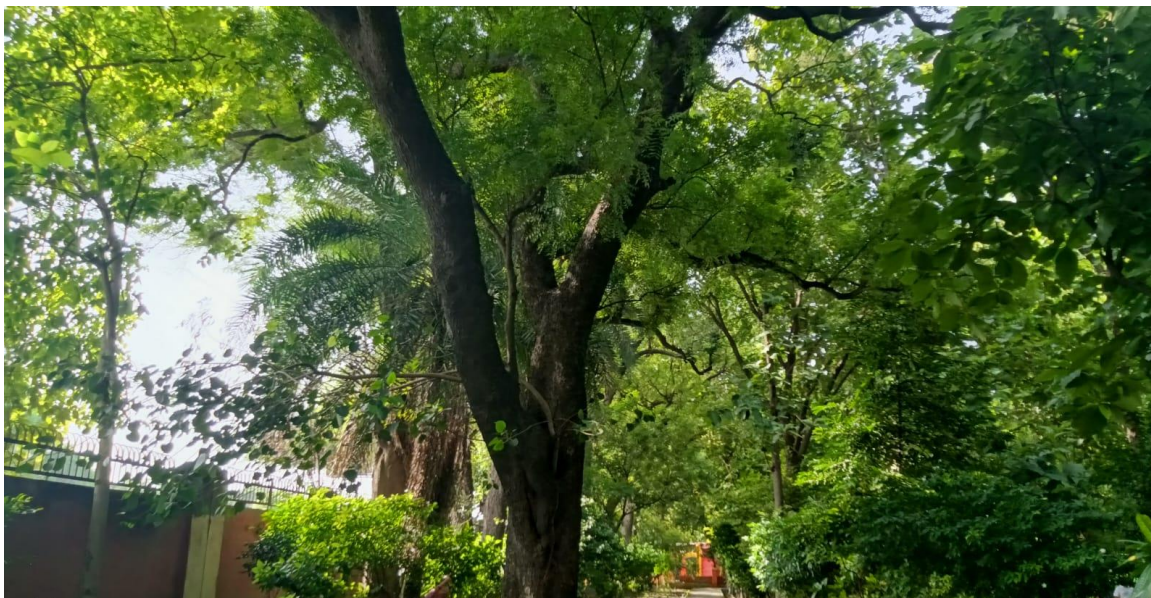


Fig.4: Peepal plant parasitic on Neem tree (*Azadirachta indica*) at Gandhi Bagh Meerut Cantt

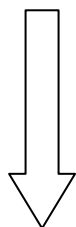






Fig.5: Peepal plant on Cucumbertree (*Magnolia accuminata*) at Gandhi Bagh Meerut Cantt





Fig.6: Peepal tree grown in wall of old building at Lal Kurti, Meerut

#### **IV. THE SAL TREE (*Shorea robusta*) Family: Dipterocarpaceae**

Sal tree is found in India, Bangladesh, Tibet, Myanmar, Sri Lanka, Nepal and Philippines. It is native plant of India, Nepal and Myanmar. In India this tree is found in Assam, Bihar, Jharkhand, Chhattisgarh, Haryana, Bengal and on the bank of the Yamuna river (Fig.7). It is widely grown in the foothills of the Himalayas. Sal trees are also found in the Bandhavgarh National Park (M.P.), Corbett National Park (Uttarakhand) and Dudhwa national Park (Uttarakhand). Sal tree requires well drained, moist and sandy loam soil (Kumar et al.2022).



Fig. 7: Sal tree forest of Chhattisgarh

#### **4.1 Stem and Wood**

It may be up to 30-35 meter high. The sapwood is whitish in color, thick and is less durable. The heartwood maybe from light brown to brown in colour. But it turns dark reddish or brown on exposure. It is resistant to the attack of white ants and fungi. Its wood develops characteristic small surface cracks while drying out because it has large number of resin canals. Sal wood retains a large amount of moisture even after several years of seasoning. The wood is diffuse porous with growth rings usually absent or indistinctly marked. It is mostly propagated through cuttings.

#### **4.2 Leaves**

Sal is a large sub-deciduous tree means it loses its leaves for a very short period that's why this tree is seldom completely leaf-less. In dry conditions it sheds its leaves from February to March. New leaves appear in the month of April and May. It has large leathery leaves with tough texture and ovate-oblong in shape.

#### **4.3 Flower and Fruit**

It has small flowers which are yellowish or whitish in color and appear in early summer. The flowers are bisexual and mature into fruit in summer. The seeds ripen in June -July. Flowers borne in lax, axillary or terminal panicles. Its sepals are wing-like and persist up to fruitification. The fruits are ovoid in shape. They doesn't dehiscent.

#### **4.4 Uses**

##### **4.4.1 Use of wood:**

Sal is the most extensively used construction wood. It is used for making beams, rafters and flooring. It's heartwood is very hard, heavy and extremely tough. That's why it is one of the most durable timbers. It is used eminently for making sleepers, railway carriage and bridges. It is one of the best sleeper wood like Deodar (*Cedrus deodara*) and Teak (*Tectona grandis*). It is also used for making carts, wagons, agricultural implements, tent pegs and handles of tools. Its wood is durable in exposed situations and even under water. Sal dammar, a resin is used in making varnish. (Kochhar, 2003; Panday 2003).

##### **4.4.2 Medicinal uses:**

It is a medicinal tree and used in Ayurveda for thousands of years to treat variety of diseases including piles, leucorrhoea, gonorrhoea, skin disorders, ulcers, wounds, diarrhea, dysentery, burning sensation, seminal weakness etc. (Adlakha et al.2014, Khan et al.2016).

The resin obtained from the tree is known as Sal dammar, Bengal Dammar, Laldhuna Ral, Rhal or Dhoom. It has carminative, stomachic and astringent properties. It gives relief in skin disorders and burn injury. It is used for curing pain in nerves fever, enlargement of spleen, abnormal discharge from body (menorrhagia, leucorrhoea), diarrhea and bleeding piles. It is also given in gonorrhoea and for weak digestion (Merish et al. 2013).

The resin is used in the indigenous system of medicine as an astringent and detergent. It is also used as an ingredient of ointments for skin diseases and in the ear troubles. It is also used in the foot care cream. The fruits

of the Sal tree are used in the treatment of excessive salivation, epilepsy, and chlorosis (iron deficiency anemia). The powdered seeds have insecticides properties. The powdered seeds are even used to treat dental problems. It cleanses the skin of oily secretion and is used as the cleanser for washing hair (Fand Vacik, 2020).

#### **4.4.3 Other uses:**

The leaves of the Sal tree are used by the tribal people for preparing rice cakes and for smoking. The leaves are used to make platters, bowls, small baskets and many more. Distilled leaves produce an oil which is used in perfumery. It is also used in flavouring chewing gums and tobacco. Its dried and fallen leaves are used as fertilizers. It is used for caulking ships and boats. Its seed-oil is edible and often used in cooking and for the burning in the oil lamps. The seeds of the Sal tree are used for fat extraction. Its oil is even used for adulterating ghee.

### **V. LOTUS (*Nelumbo nucifera*) Family: Nelumbonaceae**

This plant is known by a number of common names including Sacred lotus, Indian lotus and Sacred water-lily. The Pink Lotus is the National Flower of India. It has received this recognition because of its Indian origin, its long association with our culture and also due to its usefulness. It is a beautiful flower with appealing color and fragrance. From very ancient time, we have been using lotus and it symbolizes purity, beauty, majesty, grace, fertility, wealth, richness, knowledge and serenity. Though it is an Indian plant, now a days it is also found in countries like China, Japan, Australia and tropical America. Like India it is the national flower of Vietnam also. Lotus is a dicotyledonous flowering plant (Angiosperm) but its anatomy matches with monocotyledons.

**5.1 Habitat:** It is an aquatic, herbaceous plant, whose roots, stem and stalk of flower remain under water. This plant's structure is wonderfully adapted for aquatic life. It is found growing in shallow water of ponds, lakes, tanks and ditches with floating leaves. It is so beautiful that it is cultivated in small pools in the gardens, parks and even in tub at home (Fig.8).

**5.2 Stem:** The stem of Lotus is fleshy, thick and remain underground in the mud at the bottom of water sources, so it is called rhizome. The plant remain anchored to the soil with the help of branches of adventitious (fibrous) roots. When the water rises to a higher level, the stalk stand vertically, when the level sinks lower, they move more and more side ways like the ribs of an umbrella which is being opened. Lotus can propagate through rhizome vegetatively.

**5.3 Leaves:** Leaves develop from the nodes of rhizome. Leaves of Lotus are large, smooth, simple and almost round in shape (Fig.8), with long, hollow, air-filled chambers and vary between 60 and 80 cm in size. The upper surface is bright green in color and glossy in appearance as it is covered with a wax-like substance, while the under surface is reddish green in color. The chambers contain bristles which serve as a means of protection against the voracious water snails, which would otherwise feed on the leaf-stalk and so destroy the leaves (Pfleiderer,1988b). Stomata are present only on upper surface. They are absent on abaxial means lower side of leaf as the leaf rests on the water they would be of no use on that side. Leaves have long stalk through which they remain connected to rhizome.

**5.4 Flower:** The flower develops singly on a long and spongy stalk which remained covered with tiny spikes for protection. The four green sepals initially form a good protection to the bud and later the sepals open out looking like small boats. The flowers are large, showy, beautiful and light pink in color that usually remains high above the water surface (Fig.9). The flowers have numerous boat-shaped petals. These petals are arranged on a spongy top-shaped disc called thalamus. The disc contains carpel i.e. female reproductive organ, which finally develops into fruits. The fruits remain embedded within the thalamus. When the fruits mature in the thalamus all the petals and stamens fall of and conical thalamus gets detached from the stalk. Finally, the thalamus rots and degenerated. The fruits containing the seed sink to the bottom of water and germinate into a new plant in favorable condition (Pfleiderer,1988b).

**5.5 Fruits:** are large, triangular shaped and spongy berry, containing many seeds. It ripens below the surface of the water. When the seeds are ripe and leave the berry, they come to the surface and the seeds are carried wherever the wind and water waves take them.

#### **5.6 Importance**

Mainly Lotus is regarded as an ornamental plant. Its flowers have religious value and are offered to goddess Lakshmi in worship during festival of Diwali. Lord Vishnu and Buddha as well as Goddess Lakshmi and Saraswati are associated with Lotus in mythology. Its Large leaves are used as plates for serving food. The rhizome (underground stem) of Lotus called Kamal-kakdi in Hindi, is useful as vegetable. Its leaf stalks and seeds are also used as food. Besides its stem, leaves, flowers specially stamen and seeds have medicinal values also which are used for treatment of various diseases like cough, fever, bleeding, stomach and liver problems (Mukherjee et.al.2009; Wang et. al. 2021; Zhang et. al. 2023).



Fig. 8: Lotus (*Nelumbo nucifera*) plant in Lalbagh Botanical Garden in Bengaluru (Karnataka ), showing bud & leaves

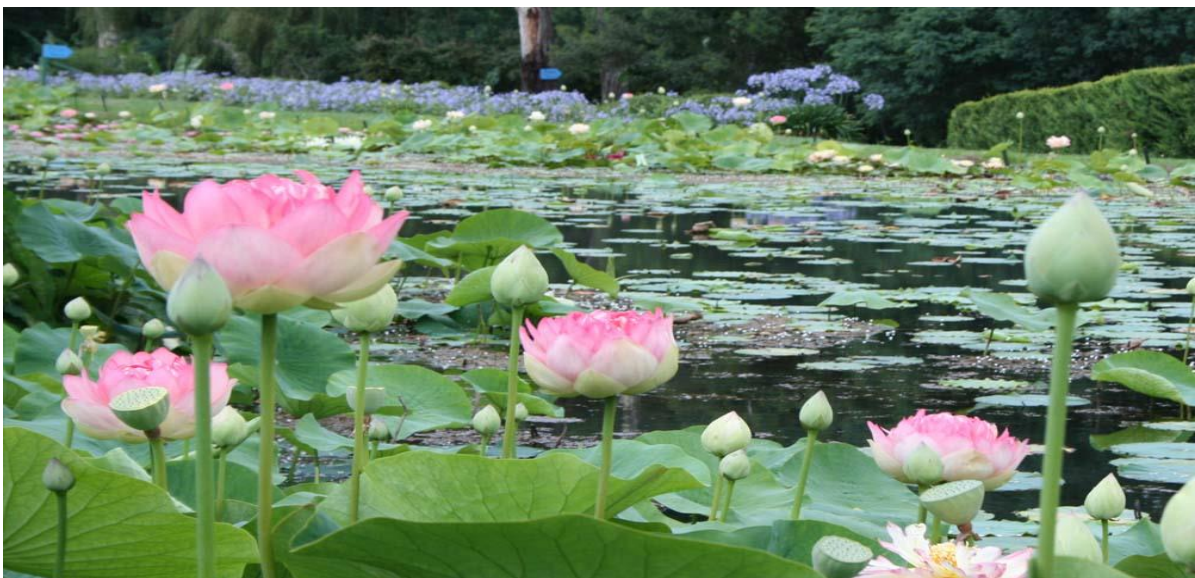


Fig. 9: Lalbagh Lake in Bengaluru showing flowers, buds & leaves of Lotus plant

## **VI. Conclusion**

In ancient India there was a rich heritage of Buddhism. Gautam Buddha lived here during the 5<sup>th</sup> century and he founded Buddhism more than 2500 years ago. Buddhism is considered as one of the major world religions but scholars don't consider it as a religion but a "way of living life" ultimately to achieve spiritual state. Plants played a very important as well as interesting role in his life as mentioned earlier. These four plants have significant value now a days also.

The Peepal tree gives Oxygen for 24 hours, as well as Banyan Tree also releases Oxygen in night time also, although the rate of oxygen production decreases at night. They play an important role in maintaining

oxygen level of our planet. These trees give shelter to other organisms and enrich ecosystem and also works as soil stabilizer. They contribute to the overall health of our environment.

Sal is ever green tree which provide many products to human beings. Sal forest also provide shelter to other plant species and fauna also. Lotus grows in challenging surroundings and survive beautifully in adverse conditions. So, this plant gives hope and teaches survival instinct to us. Seeds of Lotus ages over 1000 and remain viable for many years. Age of Sal is also 100 years or more. Banyan tree survives 200- 500 years and Peepal tree can survive more than 2500 years. All the four plants are perennial and can survive beautifully to make this world more beautiful.

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